

TRANSLATION

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>25707 WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/012046</b>	International filing date ( <i>day/month/year</i> ) <b>26.10.2004</b>	Priority date ( <i>day/month/year</i> ) <b>30.10.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>C13D3/06, C13D3/12</b>		
Applicant <b>SÜDZUCKER AKTIENGESELLSCHAFT MANNHEIM/OCHSENFURT</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>8</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>11</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																										
<p>4. This report contains indications relating to the following items:</p> <table><tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr><tr><td><input type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr><tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td><input type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr></table>			<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand		Date of completion of this report																								
Name and mailing address of the IPEA/EP		Authorized officer																								
Facsimile No.		Telephone No.																								

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-35 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-49 received by this Authority on 31.10.2005 with letter of 31.10.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1, 2 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																					
1. Statement	<table><tbody><tr><td rowspan="2">Novelty (N)</td><td>Claims</td><td><u>1-49</u></td><td>YES</td></tr><tr><td>Claims</td><td><u></u></td><td>NO</td></tr><tr><td rowspan="2">Inventive step (IS)</td><td>Claims</td><td><u>1-49</u></td><td>YES</td></tr><tr><td>Claims</td><td><u></u></td><td>NO</td></tr><tr><td rowspan="2">Industrial applicability (IA)</td><td>Claims</td><td><u>1-49</u></td><td>YES</td></tr><tr><td>Claims</td><td><u></u></td><td>NO</td></tr></tbody></table>	Novelty (N)	Claims	<u>1-49</u>	YES	Claims	<u></u>	NO	Inventive step (IS)	Claims	<u>1-49</u>	YES	Claims	<u></u>	NO	Industrial applicability (IA)	Claims	<u>1-49</u>	YES	Claims	<u></u>	NO
Novelty (N)	Claims		<u>1-49</u>	YES																		
	Claims	<u></u>	NO																			
Inventive step (IS)	Claims	<u>1-49</u>	YES																			
	Claims	<u></u>	NO																			
Industrial applicability (IA)	Claims	<u>1-49</u>	YES																			
	Claims	<u></u>	NO																			
2. Citations and explanations (Rule 70.7)	<p>1. The present report makes reference to the following documents:</p> <p>D1: US-A-3 806 364 (GASCO M, IT) 23 April 1974 (1974-04-23)</p> <p>D2: DATABASE WPI Section Ch, Week 199841 Derwent Publications Ltd., London, GB; Class D17, AN 1998-479717 XP002317956 &amp; RU 2 105 817 C1 (UVAROSAKHAR STOCK CO) 27 February 1998 (1998-02-27)</p> <p>D3: US-A-4 009 706 (SHAUGHNESSEY ET AL) 1 March 1977 (1977-03-01)</p> <p>D4: WO 99/24623 A (SUED-CHEMIE AG; MARTINEZ REYES, CARLOS; ORTIZ NIEMBRO, JOSE ANTONIO; C) 20 May 1999 (1999-05-20)</p> <p>D5: US-A-4 288 551 (GUDNASON ET AL) 8 September 1981 (1981-09-08)</p> <p>D6: GB-A-2 136 446 (THE COCA-COLA COMPANY) 19 September 1984 (1984-09-19).</p> <p style="text-align: right;">/...</p>																					

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

2. CLAIMS 1, 18, 27, 39 and 42

Document D2 is considered to be the prior art closest to the subject matter of claims 1, 18, 27, 39 and 42.

Both D2 and the present application describe the preliming of the raw juice by the addition of milk of lime and polyacrylamide, a separation step, and the main liming process with carbonate ions.

Thus, the objective technical problem addressed by the present invention consists in devising an improved method for the extract purification of raw sugar beet juice, the conventional method steps being substantially retained yet the extract purification being more straightforward to implement and more effective while, at the same time, a new type of non-saccharose substance with particularly advantageous properties can be obtained.

The difference between the teaching of the claims and the closest prior art lies, in essence, in the choice of the polyacrylamide which, according to the invention, is present as a copolymer of acrylamide and sodium acrylate, having a molecular mass of between approximately 5 and approximately 22 millions. A further difference is found in the concentration of the copolymer, which according to the invention, is used in a concentration of between 1 and 8 ppm.

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

Using the method according to the invention, the new preliming process can be carried out in a sequence of steps similar to that of the known preliming method. However, by contrast with the known method, the non-saccharose substances that are precipitated or coagulated during the preliming process are separated immediately after the preliming step since the raw sugar beet juice is already substantially purer thereafter owing to the separation, as per the invention, of the non-saccharose substances by using the copolymer according to the invention.

No document describes all the above technical features. For this reason, a person skilled in the art would disregard documents D3 to D6. The teachings of said documents cannot be applied to methods of the type in question. The prior art citations do not describe a method for extract purification consisting of the preliming step, the addition of at least one copolymer, the separation of the coagulum from the preliming juice, the main liming process and the implementation of a first carbonation, or a corresponding method for obtaining concentrates of non-saccharose substances. Thus, for a person skilled in the art the application of these features to a similar effect is not obvious.

Claims 1, 18, 27, 39 and 42 (and dependent claims 2-18, 19-26, 28-38, 40, 41, 43, 44) therefore involve an inventive step (PCT Article 33(3)).

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
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## 3. CLAIM 45

D1 and D2 are the closest prior art. Both documents relate to devices for the extract purification of raw sugar beet juice. In a first container, the raw juice is prelined and the polyacrylamide added. Then, in a first separating device, the coagulant floc obtained during prelining is separated from the prelining juice.

The difference between the device proposed in the prior art citations and the device according to the claims is to be found, in essence, in the fact that the device according to the claims provides at least one further second separating device (23) for the further concentration of the coagulant floc as well as means for conveying the prelining juice from the first separating device together with the juice from the second separating device in a common line (35). In this way, a particularly concentrated coagulant floc is obtained.

The technical problem addressed by the invention consists in providing a device for carrying out the method according to the invention, a particularly highly concentrated coagulant floc being obtainable thereby and the method being otherwise carried out in the conventional manner.

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None of the prior art citations relates to the objective technical problem as set forth above and none of said documents gives any indication of how this problem can be solved by means such as the device of interest. In particular, there is nothing to suggest providing a second separating device for the further concentration of the coagulant floc and conveying the preliming juice from the two separating devices together in a common line.

Claim 45 (and dependent claims 46-49) therefore involve an inventive step (PCT Article 33(3)).

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box I**

1. The amendments submitted with the letter of 31 October 2005 do not introduce substantive matter (claim 27: page 25, lines 20-26; claim 42: page 28, lines 2-11; claim 45: page 29, lines 12-24; page 31 line 25 to page 33, line 12; figure 2, claims 48 and 49) and comply with the requirements of PCT Article 34(2)(b).: